
CHAPTER ONE

INTRODUCTION

1. INTRODUCTION

This integrated feasibility report and Environmental Impact Statement (EIS) documents the results of a feasibility study for proposed improvements to the authorized Columbia and lower Willamette Rivers navigation channel in Oregon and Washington. The channel is currently authorized at a 40-foot depth and generally a 600-foot width. The feasibility study was initiated in 1994 and is co-sponsored by the U.S. Army Corps of Engineers (Corps) and the seven lower Columbia River ports. These ports include Astoria, St. Helens, and Portland in Oregon and Longview, Kalama, Woodland, and Vancouver in Washington. The Port of Portland serves as the overall coordinator for the sponsoring ports. The letter of commitment for sponsoring the feasibility study is displayed in Exhibit A, *Correspondence*. The U.S. Environmental Protection Agency (EPA) Region 10 in Seattle, Washington, is a cooperating agency for this integrated feasibility report and EIS.

The objectives of a feasibility study are to (1) evaluate the specific engineering, environmental, and economic effects of proposed alternatives for improving the authorized channel as compared to the without-project condition (no action alternative); (2) identify a plan which maximizes National Economic Development (NED) benefits while protecting environmental resources in accordance with Federal laws and statutes; (3) recommend a plan for construction if economic, environmental, and engineering justification is met and the plan is supported by the sponsor; and (4) prepare and document the environmental and procedural requirements necessary to support EPA final site designation of new ocean dredged material disposal sites (ODMDS) for disposal of material from maintenance dredging at the Mouth of the Columbia River (MCR) project, disposal requirements for construction of proposed channel improvements, maintenance of the lower Columbia River channel, and other permitted disposal activities. This site designation process will proceed whether or not the recommendations of this study are implemented. New site designation will be necessary for the existing MCR project, Columbia River channel maintenance, and other permitted disposal activities.

1.1. Purpose and Need

The purpose of the proposed project is to improve the deep-draft transport of goods on the authorized 40-foot deep Columbia and lower Willamette Rivers navigation channel, and to provide ecosystem restoration for fish and wildlife habitats. The planning period for this project is 50 years. Channel improvements are limited to a maximum depth of 43 feet (see Section 1.2).

The need for navigation improvements has been driven by the steady growth in waterborne commerce on the Columbia River and the use of larger and more efficient vessels to transport bulk commodities, which comprise the majority of export tonnage shipped. With the increased use of deep-draft vessels for transport, limitations posed by the existing channel dimensions now occur with greater frequency. Ships with design drafts near the 40-foot depth constraint can not fully utilize their carrying capacity. Also, water depth availability problems cause vessel delays.

By improving navigation, the opportunity to realize greater NED benefits (limited to a maximum depth of 43 feet) would result from reducing transportation costs by allowing deep-draft vessels to carry more tonnage, and by reducing vessel delays.

Continued maintenance of the MCR project is a necessary component for the viability of not only the existing 40-foot navigation channel but also to any proposed channel improvements. In 1992, EPA and the Corps determined that the four existing EPA-designated ocean disposal sites had inadequate capacity for long-term maintenance of the MCR project (further detailed information is provided in Appendix H, *Columbia River Ocean Dredged Material Disposal Sites*). Since that time, interim measures were taken in 1993 and 1997 to expand site capacities until procedures for identification and selection of long-term ocean disposal sites could be completed. The timing of this long-term site selection process and the need to identify suitable ocean disposal sites for construction and long-term maintenance of proposed channel improvements further established the need to address the combined ocean disposal requirements in this document.

The ecosystem restoration component included in this report was scoped and coordinated with state and federal agencies in accordance with Corps Engineer Circular 1105-2-210, dated June 1, 1995, *Ecosystem Restoration in the Civil Works Program*. At a January 3, 1997 Technical Review Conference, Corps Headquarters staff advised the Portland District that based on discussions with their Office of Counsel, the current study resolution for this General Investigations study does not prohibit including ecosystem restoration. Therefore, the same study authority is being cited for the inclusion of the ecosystem restoration component. In a letter dated September 9, 1997, displayed in Exhibit A, *Correspondence*, the sponsoring ports requested that the Corps include ecosystem restoration in the on-going feasibility study. The Corps agreed to this study modification on October 16, 1997.

1.2. Study Authority

This study was authorized by a resolution of the U.S. House of Representatives, Committee on Public Works and Transportation, adopted August 3, 1989. The resolution reads as follows:

Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, that the Board of Engineers for Rivers and Harbors is requested to review the reports for the Columbia and Lower Willamette Rivers below Vancouver, Washington, and Portland, Oregon, published as House Document Number 452, Eighty-seventh Congress, second session, and other pertinent reports with a view to determining the advisability of modifying existing deep draft navigation projects.

Specific guidance for the conduct of this feasibility study was provided in the Energy and Water Appropriation Act of Fiscal Year 1994, Public Law 103-126, as well as a meeting held on September 22, 1994 between the Acting Assistant Secretary of the Army for Civil Works [ASA(CW)] and the Corps. This guidance limited the scope of the feasibility study to channel depths no greater than 43 feet, as desired by the sponsors. Consequently, a NED plan may not be identified in this feasibility study. In addition, Corps headquarters directed that the *Dredged Material Management Plan* (DMMP, Corps of Engineers, 1998) would serve as the without-project condition for this study. This plan evaluated the most efficient way to maintain the authorized 40-foot navigation channel in the future. Criteria for ODMDS designation and use as required by Sections 102 and 103 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended, are set forth in Title 40 of the *Code of Federal Regulations*, Section 228.

1.3. Study Area

The study area includes the Columbia and lower Willamette Rivers federal navigation channel which covers 11.6 miles of the Willamette River below Portland, Oregon and 103.5 miles of the Columbia River below Vancouver, Washington (figure 1-1). The Willamette channel extends from the Broadway Bridge at Willamette river mile (WRM) 11.6 to the mouth at WRM 0. The Columbia channel extends from the Interstate 5 Highway Bridge at Columbia river mile (CRM) 106.5 to the mouth at CRM 3.0.

The MCR project extends from CRM 3.0 to 5 miles downstream (CRM -2.0) and has a 55-foot deep by 2,000-foot wide outbound lane and a 48-foot deep by 640-foot wide inbound lane. The Columbia River entrance (bar), which was authorized to a depth of 55 feet in 1983 (Public Law 98-63) and completed in 1984, has historically been a separable element. This feasibility study does not analyze the MCR project. It does, however, evaluate the existing dimensions of the project for compatibility with proposed channel improvement alternatives. Also, it discusses alternatives for identifying new ocean dredged material disposal sites for maintenance dredging at the mouth of the river, disposal requirements for construction of channel improvements, maintenance of the lower Columbia River channel, and other permitted activities.

1.4. Scope of Study

The scope of studies that define the tasks and guide the feasibility process for this study are contained in the *Columbia River Channel Deepening, Oregon and Washington, Feasibility Cost Sharing Agreement and Initial Project Management Plan*, as amended (Corps of Engineers, 1994). This document separated the feasibility study into three distinct phases. The first phase concentrated on identifying a least-cost, environmentally acceptable dredged material disposal plan for each alternative. The next phase identified the one alternative plan that maximizes net benefits, within study constraints. The final phase described the sponsor's preferred plan, if different from the plan that maximizes benefits. Site designation studies and evaluation for potential new ocean disposal sites is integrated as part of the overall study scope.

All reasonable alternatives were identified and evaluated through an iterative process using screening criteria that was progressively more stringent. Alternative plans to alleviate specific problems and address opportunities in the study area were formulated using a system of structural and/or non-structural measures. Potential measures and alternatives were evaluated in consideration of planning criteria as defined in the Corps' Engineer Regulation 1105-2-100, dated December 28, 1990, *Guidance for Conducting Civil Works Planning Studies*.

If the sponsors prefer an alternative that would be different from the one which maximizes net benefits, they could select that plan subject to a waiver from the ASA(CW). Enhanced cost sharing could be required if the sponsor's preferred plan is more costly than the NED plan. Enhanced sponsor cost-sharing could also be required if dredged material disposal occurs on specific sites not identified as part of the least cost plan. Since the NED plan would not be identified for this study, a baseline cost estimate would be prepared only for the sponsor's preferred plan, subject to a waiver approval by the ASA(CW).

The scope of the ecosystem restoration component would consist of restoring the hydraulic connection between the Columbia River and Shillapoo Lake and fisheries habitat restoration. The fisheries habitat restoration component would be divided into tide gate improvements for fish passage, and improving side-channel flows at Hump-Fisher and Walker-Lord Islands for juvenile salmonid use.

1.5. Study Participants and Coordination

Many aspects of this five-year feasibility study required the coordination of specialized technical efforts among many federal, state, and local agencies, as well as the maritime community, local interest groups, and citizens. Provided below is a listing of some of the specialized committees, meetings, and consultations that were used to obtain assistance and input for the study. Chapter 7 of this report provides further information on the public involvement and coordination process.

- Public Workshops
- Environmental Roundtables
- Salinity Workshops
- Reach Meetings with Resource Agencies
- Ecosystem Restoration Workshops
- Ocean Dredged Material Disposal Site Technical Working Group
- Sediment Quality Technical Group
- Endangered Species Act Consultation
- Coordination Act Report with the US Fish and Wildlife Service
- Wildlife Mitigation Interagency Technical Work Group

1.6. Previous Studies

Many reports have been produced to address navigation on the Columbia River. Those that specifically pertain to this study are summarized below. These documents are being incorporated by reference into this report. They are available for review at the Corps' Portland District office located at 333 SW First Avenue in Portland.

- *Columbia and Willamette Rivers Below Vancouver, Washington and Portland, Oregon, June 25, 1962.* This study published as House Document 452, Eighty-seventh Congress, second session, recommended the construction of the 40-foot deep by 600-foot wide navigation channel in the study area. Two 40-foot deep turning basins at Vancouver and Longview, Washington were included. A second turning basin 35 feet deep upstream of Vancouver, Washington was incorporated as described in an interim report dated April 8, 1959. Shallower side channels at Rainier and St. Helens, Oregon and Cathlamet and Longview, Washington are also maintained as part of the project. The plan was authorized in the River and Harbors Act of 1962, Public Law 87-874, October 23, 1962. Since then, two 40-foot deep turning basins at Astoria, Oregon and Kalama, Washington were authorized under the Continuing Authority Program (Section 107, River and Harbors Act of 1960) and incorporated into the project.
- *Columbia and Lower Willamette River Environmental Impact Statement, July 1975.* This EIS addressed the environmental effects of the 40-foot channel and ongoing/future maintenance in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. Specific areas addressed include the effects of a deeper channel, the impacts of dredging and disposal practices, impacts at specific upland and beach nourishment disposal sites, and indirect and cumulative effects.
- *Mouth of the Columbia River Dredged Material Disposal Site Designation Environmental Impact Statement, February 1983.* This report prepared by the EPA established environmentally acceptable ocean disposal sites for dredged material in compliance with the Ocean Dumping Act.
- *Mouth of the Columbia River Dredged Material Disposal Site Expansion Environmental Assessments, 1993 and 1997.* These reports were prepared to address the interim expansion of existing ocean disposal sites to alleviate mounding at the sites. The interim expansions were considered necessary until long-range studies for designation of new disposal sites were completed.
- *Columbia and Lower Willamette River Maintenance Environmental Assessments, 1983, 1989, and 1994.* Since the 1975 EIS, changes in maintenance practices and environmental conditions warranted additional NEPA documentation. Environmental Assessments (EAs) were prepared to address minor changes in maintenance and subsequent environmental effects. All resulted in findings of no significant impact.

- *Mount St. Helens Feasibility Report and Environmental Impact Statement, December 1984.* This report addressed emergency dredging actions resulting from the 1980 eruption of Mount St. Helens, including dredging and disposal in the Columbia River.
- *Columbia River Coal Export Channel, Technical Report, October 1987.* This report contained a preliminary analysis on deepening the lower Columbia entrance and navigation channel to accommodate deep-draft coal and other bulk carrier ships up to Astoria, Oregon. Alternatives studied included deepening and widening channels and creating turning basins.
- *Lower Columbia River Channel Improvement, January 1989.* This report prepared by Ogden Beeman and Associates evaluated the potential for enlarging the existing channel from the bar to Portland, Oregon.
- *Lower Columbia River Maintenance Improvement Review, February 1989.* This report contained an analysis of past maintenance practices between CRM 30 and CRM 53.5 to determine if operation and maintenance costs could be reduced.
- *Long Term Management Strategy for 40-foot Channel Maintenance Dredging in the Columbia River Estuary, Phase I Report, June 1989.* This study initiated a multi-phase analysis to determine future disposal practices between CRM 4 and CRM 28. The report evaluated existing information on navigation, environmental, and economic conditions and identified critical gaps in information.
- *Lower Columbia River Deep Draft Navigation Use Assessment Study, Summary Report, August 1989.* This report includes a summary of information on ship movements, statistics on deep-draft waterborne commerce, water levels at selected points, vessel characteristics and institutional-infrastructure constraints. This information is contained on data base files for use in evaluating the feasibility of channel improvements.
- *Lower Columbia River Oregon and Washington, Columbia River Channel Deepening Reconnaissance Report, October 1991.* This report was approved in August 1992 and formed the basis for this feasibility phase study. Two alternatives were analyzed: a 42-foot deep by 600-foot wide channel for the lower 45 miles of the river in conjunction with the existing 40-foot depth upstream, and a 45-foot deep by 600-foot wide channel for the entire length of the authorized project. A third channel depth of 44 feet was evaluated in less detail.
- *Columbia and Lower Willamette River Federal Navigation Channel, Final Integrated Dredged Material Management Plan and Supplemental Environmental Impact Statement, June 1998.* This report presented the findings of studies conducted to determine how to best maintain the authorized 40-foot navigation channel over the next 20 years using the criteria of least cost, environmental acceptability, and technical feasibility. These criteria are based on Engineer Circular 1165-2-200, dated July 21, 1994, *Implementation Guidance on Dredged Material Management Plans*, which is

applicable to all Corps navigation projects. The potential impacts to physical, cultural and biological resources were evaluated in accordance with the requirements of the NEPA. The proposed actions were evaluated in accordance with the requirements of the Clean Water Act, Endangered Species Act, Coastal Zone Management Act, Marine Protection Research and Sanctuaries Act, as well as other environmental laws and Executive Orders.

- *Dredged Material Evaluation Framework, Lower Columbia River Management Area, November 1998.* This report lays out a framework for dredged material suitable for in-water disposal, and establishes a regional management team for dredged material assessment.

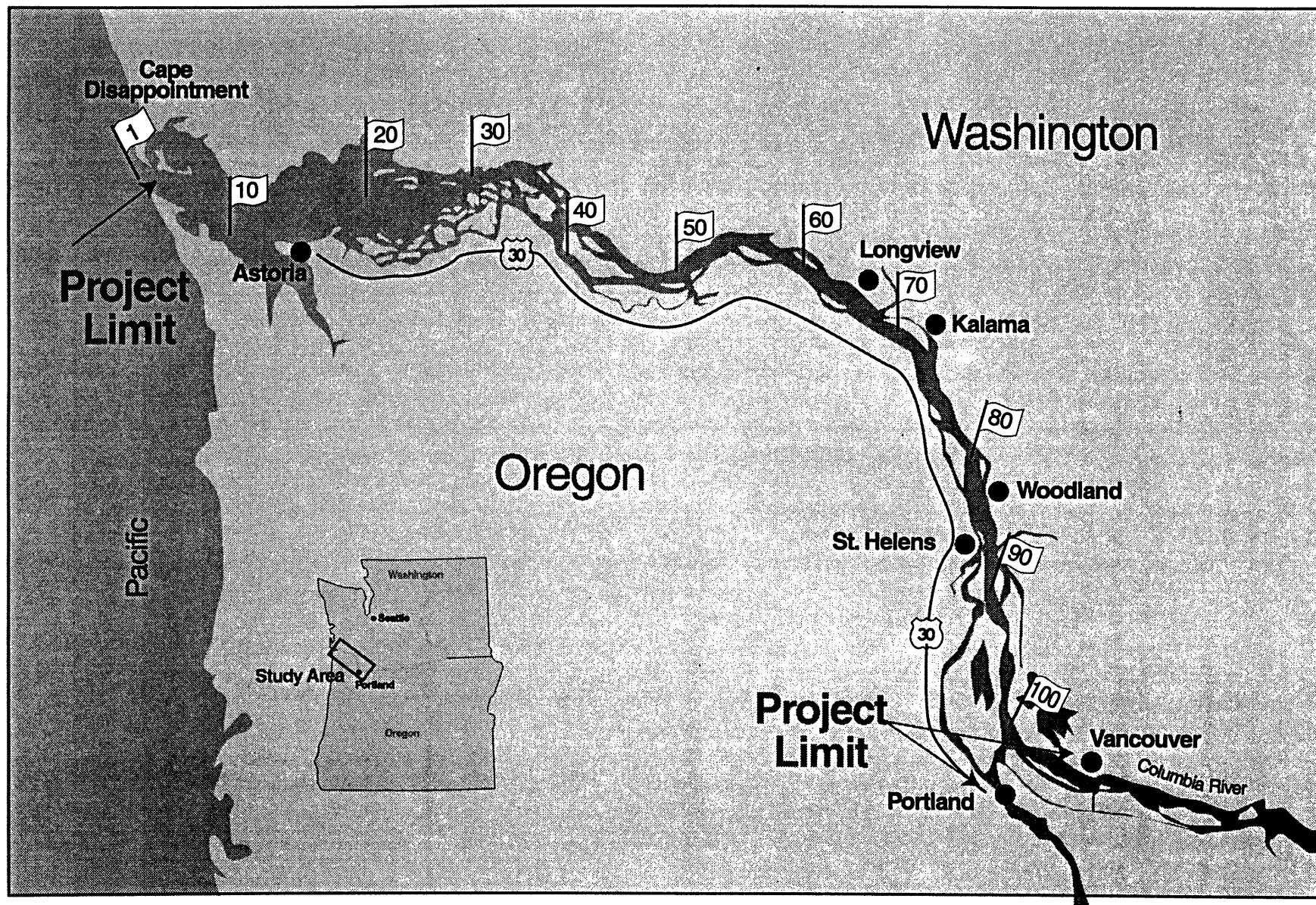


Figure 1-1 Study Area Map